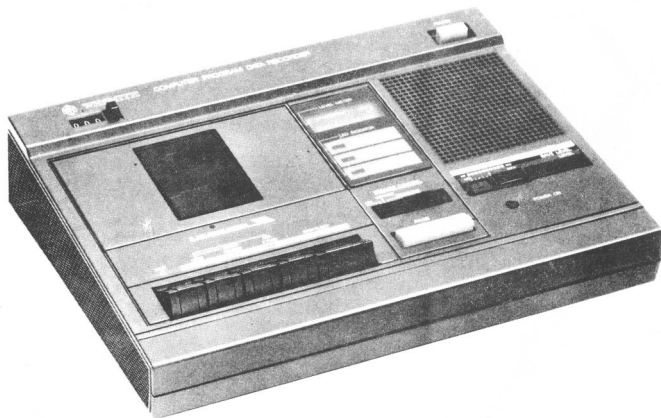


# ***OWNER'S MANUAL***

## **COMPUTER PROGRAM DATA RECORDER**



 **WHSMITH**

**Model CPD8300**

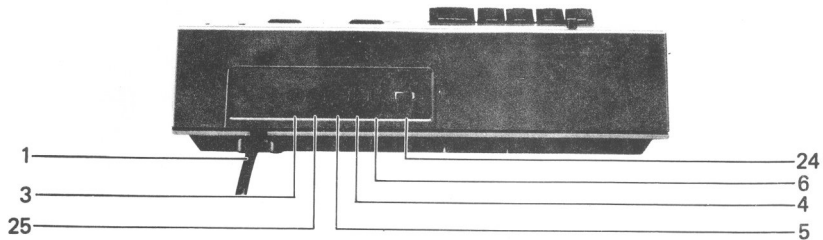
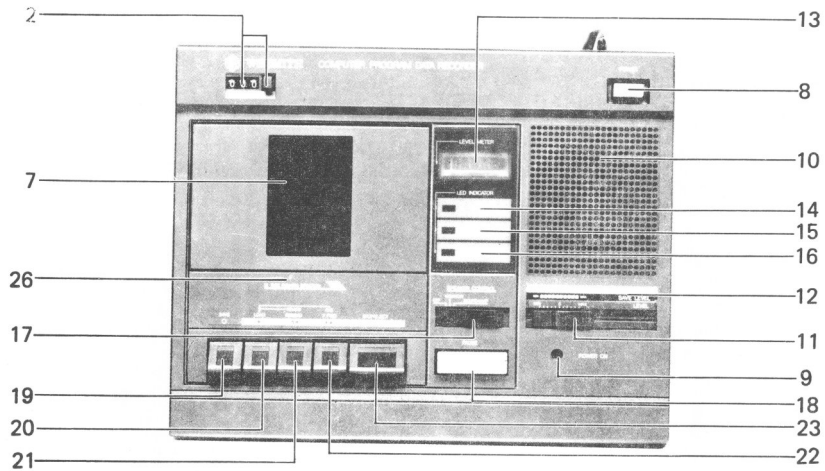
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## 1. CONTROLS AND FEATURES

1. A.C. 240 Volt Mains Lead
2. Tape Counter and Reset Button
3. Load Socket(EAR)
4. Save Socket(MIC)
5. Auxiliary Signal Input Socket(AUX)
6. Remote Motor Control Socket(REM)
7. Cassette Compartment and Lid
8. Power ON/OFF Switch
9. Power ON Warning Light
10. Speaker
11. Save/Load Level Set Control
12. Personal Save/Load Level Setting Indicator
13. Save/Load "Level Indication" Meter
14. Load Function Light
15. Save Function Light
16. Tape Running Warning Light
17. Speaker Function Control Switch
18. Pause Switch
19. Save Key (Record)
20. Load Key (Play)
21. Rewind/Data- Review Key
22. Fast Forward/Data-Cue Key
23. Stop/Cassette-Eject Key
24. Spectrum/Other Switch
25. Computer Sound Signal Input Socket
26. Head Azimuth Adjustment Hole



## 2. MAINS PLUG CONNECTION INFORMATION

### IMPORTANT

The correct supply voltage for your W. H. Smith CPD-8300 Computer Data Recorder is A.C. 240 Volts, 50 Hz. and it should not be connected to any other supply voltage or damage will occur.

The wires in this mains lead are coloured with the following code:

BLUE : Neutral

BROWN : Live

As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug proceed as follows:—

The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N (neutral) or coloured BLACK. The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L (live) or coloured RED.

If a 13 Amp. (BS1363) plug is used a 3 Amp. fuse must be fitted, or if any other type of plug is used a 5 Amp. fuse must be fitted either in the plug or adaptor or at the distribution board.

**When not in use always disconnect the A.C. Mains Lead (1) from the wall socket.**

### 3. INTRODUCTION TO SPECIAL FEATURES

The W. H. SMITH COMPUTER PROGRAM DATA RECORDER CPD-8300 is specifically designed for use with home personal computers and incorporates many useful features not available on normal cassette recorders. It can however, still be used as a normal cassette recorder for recording and playback of music tapes if so desired. The tape transport controls are similar to those of a conventional cassette recorder.

The special features included, specifically for ease of use with home computers are:—

1. Tape Counter (2) coupled with CUE/REVIEW (21-22) facility for quick and easy location of individual programs.
2. Electronic PAUSE (18) designed to be overridden by computer control via the Remote Motor Control Socket (6).
3. Adjustable, stabilised SAVE or LOAD levels controlled by the LEVEL SET CONTROL (11) to eliminate problems which can be experienced when SAVING on cassette recorders having only automatic electronic level control.
4. Easily readable signal level display on the LEVEL INDICATION METER (13), which is active on both SAVE and LOAD.
5. Personal SAVE/LOAD LEVEL SETTING INDICATOR (12) for ensuring correct setting of Levels for your particular computer.
6. SPEAKER FUNCTION CONTROL (17) allowing independent control of speaker.

Available functions are:—

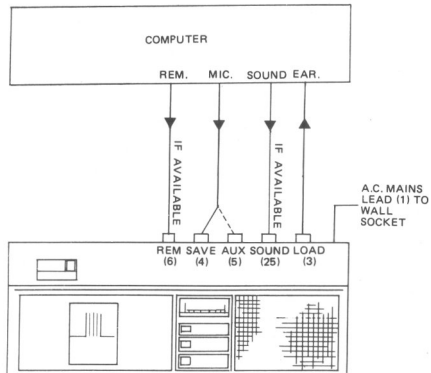
- A. OFF. No Sound.
- B. MONITOR. LOW level sound for monitoring programs being Saved or Loaded.
- C. SOUND/AMP. High level sound amplification of the sound signals from your computer. This obviously applies only if your computer is capable of generating sound signals which are externally available for processing (including SPECTRUM).

7. Automatic isolation of SAVE or LOAD Sockets (3-4) to prevent possible hum loops, thereby obviating the necessity for time consuming disconnection of SAVE or LOAD leads.
8. Indicator Lights for LOAD (14) SAVE (15) and TAPE RUNNING (16).
9. Easy adjustment of HEAD AZIMUTH position for use when loading commercially produced pre-recorded program tapes.
10. POWER ON/OFF SWITCH (8) with WARNING LIGHT (9).

In conclusion, the CPD-8300 will operate reliably with any computer which has been designed to load or save programs using standard Microphone and Earphone sockets.

### 4. SETTING UP PROCEDURE

1.



CPD-8300

SAVE/AUX CONNECTION — SEE TEXT

2. Connect appropriate LOAD and SAVE leads (not supplied) between computer and data recorder in accordance with the instructions given in your computer manual, initially connecting Computer MIC Socket to CPD-8300 SAVE Socket. Details on the use of the AUX SOCKET (5) will be given later.

NOTE — on your CPD-8300

LOAD SOCKET = EAR SOCKET

SAVE SOCKET = MIC SOCKET

3. Should your computer have a remote motor control facility (Refer to your computer manual) then this should be connected to the REMOTE SOCKET (6).
4. If your computer has an externally available sound signal facility (Refer to your computer manual) connect this to the COMPUTER SOUND SIGNAL INPUT SOCKET (25) via an appropriate connection cable.

In the case of SPECTRUM however, no additional lead is necessary but it is essential that the SPECTRUM/OTHER SWITCH (24) is in the SPECTRUM position.

This completes all the necessary connections.

For those not already familiar with the operating of cassette tape recorders, please refer to Tape Transport, Section 9, and all users should thoroughly acquaint themselves with the information contained in MAINTENANCE AND SIMPLE PRECAUTIONS, Section 11. This information is vital to the correct and reliable operation of the DATA Recorder.

## 5. LOADING PROGRAMS

### A. LOADING SEQUENCE

1. Switch on the power and ensure POWER ON LIGHT (9) illuminates.
2. Ensure the computer is correctly connected to the recorder as detailed in Section 4.

3. Insert the program cassette into the CASSETTE COMPARTMENT (7) and close the lid.
4. Check that the LOAD FUNCTION LIGHT (14) is "ON".
5. Depress LOAD KEY (20) and ensure the TAPE RUNNING LIGHT (16) is flashing. If not, release PAUSE SWITCH (18). Press STOP/EJECT KEY (23).
6. Using FF/CUE (22) or REW/REV KEY (21) in conjunction with LOAD KEY (20) and TAPE COUNTER (2) set the tape position to the beginning of the required program.
7. Set SPEAKER FUNCTION SWITCH (17) to "OFF" or "MONITOR" as desired.  
Please note that loading can NOT be achieved in the SOUND/AMP position (See Section 7).
8. Follow carefully the Loading Sequence laid out in your computer manual.

### B. ADDITIONAL LOADING INFORMATION

1. The correct use of the PAUSE SWITCH (18) is detailed in Section 7.
2. If you wish to audibly monitor the loading signal, this can be achieved by switching the SPEAKER FUNCTION SWITCH (17) to the MONITOR position. If audible monitor is not required, switch to the "OFF" position. Do NOT attempt to load in the SOUND/AMP position or switch to this position at any time during the loading procedure.
3. Continual switching of the SPEAKER FUNCTION SWITCH (17) during Loading is also not recommended.
4. The loading level can be adjusted using the SAVE/LOAD LEVEL CONTROL (11) and can be directly read on the SAVE/LOAD LEVEL INDICATION METER (13). Once the correct loading level for your computer has been determined by experiment and noted on the PERSONAL SAVE/LOAD LEVEL SETTING INDICATOR (12), it should be easy to achieve reliable loading from program tapes obtained from various different sources, by adjusting the LEVEL SET CONTROL (11) to give the same indication on the LEVEL INDICATION METER (13).

5. Should you experience any problems in Loading, please check all points listed in Section 11.

## **6. SAVING PROGRAMS**

### **A. SAVING SEQUENCE**

1. Switch on the power and ensure POWER ON LIGHT (9) illuminates.
2. Ensure the computer is correctly connected to the recorder as detailed in Section 4.
3. Insert a blank tape into the CASSETTE COMPARTMENT (7) and close the lid.
4. Depress LOAD KEY (20) and ensure the TAPE RUNNING LIGHT (16) is flashing. If not, release the PAUSE SWITCH (18).
5. Depress STOP/EJECT KEY (23).
6. Using FF/CUE (22) or REW/REV (21) KEYS in conjunction with LOAD KEY (20) and TAPE COUNTER (2), set the tape position to that required for commencement of saving.
7. Set SPEAKER FUNCTION SWITCH (17) to "OFF" or "MONITOR" as desired.
8. To carry out the INITIAL save level adjustment, carefully follow the saving sequence laid out in your computer manual, adjusting the save/load level set control (11) to give a maximum reading of between "5" and "7" on the level indication meter (13). However when used with certain computers (e.g. ZX-81), because of the low level of the computer signal and its format, an artificially low reading is obtained. This does not prevent correct "SAVING". In this case adjust the LEVEL SET CONTROL (11) to maximum and proceed as normal, noting the actual meter reading obtained for future "SAVING".  
Mark the LEVEL SET CONTROL (11) value (1-10) on to your PERSONAL SAVE/LOAD LEVEL SETTING INDICATOR (12). For all future recording of programs, from the same computer, it is only necessary to adjust the LEVEL SET CONTROL (11) to this same value.

9. Discard this first initial saving attempt when completed, as variations in SAVE level have been recorded during initial adjustment. These variations will not be acceptable to your computer should you attempt to re-load.
10. Return the tape to its original position and using the correct SAVE LEVEL, already ascertained during the initial attempt, save the program using the Saving Sequence laid out in your computer manual.

### **IT IS IMPORTANT NOT TO ALTER THE LEVEL SET CONTROL (11) AT ANY TIME DURING THE SAVING SEQUENCE OR UNREADABLE PROGRAMS MAY BE STORED.**

11. Whenever the SAVE KEY (19) is pressed the SAVE FUNCTION LIGHT (15) should illuminate.

### **B. ADDITIONAL SAVING INFORMATION**

1. The correct use of the PAUSE SWITCH (18) is detailed in Section 7.
2. If you wish to audibly monitor the program being saved, this can be achieved by switching the SPEAKER FUNCTION SWITCH (17) to MONITOR position. If audible monitor is not required, switch to the OFF position. Although saving can be achieved in the SOUND/AMP position, this is not recommended as the audible volume level will be very high.
3. Continual Switching of the SPEAKER FUNCTION SWITCH (17) during saving is also not recommended.
4. Because the level of "SAVE" signals available from different brands of computers varies over a very large range, it is possible that on some computers, difficulty may be experienced in adjusting to the correct level on the LEVEL INDICATION METER (13). If it is difficult to sufficiently reduce the reading, or if the sensitivity of adjustment on the LEVEL SET CONTROL (11) is too critical, an improvement should result by connecting the Computer MIC LEAD to the CPD-8300 AUX SOCKET (5) instead of the SAVE SOCKET (4). This will allow the CPD-8300 to deal effectively with signals of higher magnitude whilst maintaining "non-critical" adjustment.

5. Should you experience any problems in saving, please check all points listed in Section 11.

## **7. SPECIAL FEATURES**

### **A. PAUSE SWITCH (18)**

- i) **NORMAL OPERATION:**— If your computer does not embody the facility to start and stop the data recorder automatically, then the PAUSE SWITCH (18) simply acts to temporarily stop and restart the tape transport motor without the need to release the LOAD OR SAVE KEYS (19-20). It has no effect in FAST FORWARD/CUE or REWIND/REVIEW Modes of operation.
- ii) **COMPUTER CONTROLLED OPERATION:**— Many computers now have the ability to stop and start the data recorder automatically, and this operation is carried out via the REMOTE MOTOR CONTROL SOCKET (6). This recorder has been designed to facilitate maximum benefit from this feature, by ensuring that Pause "ON" is always overridden by a "GO" signal from the Computer.

Additionally, the tape drive can always be re-started by the release of the PAUSE SWITCH (18) even if the Computer Control Signal is in the STOP mode. Thus, to achieve computer control of the tape drive, the PAUSE SWITCH (18) must always be in the PAUSE ON position.

This operation in this mode is as follows for either LOAD or SAVE:

- a. Connect appropriate lead between Computer REM SOCKET and CPD-8300 REMOTE MOTOR CONTROL SOCKET (6).
- b. With PAUSE SWITCH (18) "OFF", set the tape position as detailed in Loading Sequence. Para. 6.
- c. Press STOP/EJECT KEY (23).
- d. Press PAUSE SWITCH (18).
- e. Press LOAD/SAVE KEYS (19-20) as appropriate. The Data Recorder motor should not run - check that the TAPE RUNNING LIGHT (16) is not flashing.

- f. Operate the LOAD or SAVE sequence in accordance with your Computer manual. The computer control signals will override the PAUSE and the TAPE RUNNING LIGHT (16) should flash whenever the recorder is in operation.
- g. On completion of the operation, the motor will stop automatically and the STOP/EJECT KEY should then be pressed and the PAUSE SWITCH (18) released.

### **B. SPEAKER FUNCTION CONTROL SWITCH (17)**

This switch has three positions:—

- i) **OFF** — No sound is available from the speaker but loading and saving is performed normally. This position is used to avoid the distracting sound of the load or save signals during normal loading or saving.
- ii) **MONITOR** — This position provides sound at a low volume level for the occasional monitoring of save or load signals. Saving or loading is performed normally.
- iii) **SOUND/AMP** — This position is selected only if your computer has an external sound facility. Sound signals from the computer are amplified and fed to the speaker. The sound volume level can be varied by the use of the LEVEL SET CONTROL (11). NO tape transport keys need to be pressed to obtain computer sound. It is vital, however, that the SPECTRUM/OTHER SWITCH (24) is in the correct position for your computer type. It should also be clearly understood that loading can not be accomplished in this position, as the LOAD SOCKET (3) is disconnected to prevent feedback of sound signals within the computer itself and consequent "howling" from the speaker.

### **C. LEVEL SET CONTROL (11)**

This control is used during saving to adjust the level of signal recorded onto the tape and is used in conjunction with the LEVEL METER (13).

During loading it is used to obtain the correct signal level for feeding the computer, the LEVEL METER (13) in this case giving a continuous reading of the level of signal applied to the computer. It is thus easy to adjust the level from virtually any tape to the correct value



for the computer to process, once the correct level has been ascertained.

In the SOUND/AMP position, this acts as a normal volume control to adjust the sound to your personal requirements.

#### **D. TAPE RUNNING LIGHT (16)**

This light will flash on and off whenever the tape motor is running, thereby giving an easily seen indication of whether the motor is in operation or not.

#### **E. TAPE COUNTER (2)**

This device offers quick and easy location of specific programs within a number of programs recorded on a single tape. The reset button should always be pressed at the start of the tape, in order to zero the counter setting. A note of the reading of the start point for each program should be kept.

#### **F. SPECTRUM/OTHER SWITCH (24)**

It is vital for the correct operation of the CPD-8300 that this switch should be in the correct position.

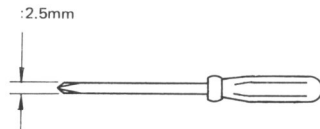
The "SPECTRUM" position should only be selected when being used with the Spectrum computer and should be switched to "OTHER" position for all other computers.

### **8. HEAD AZIMUTH ADJUSTMENT**

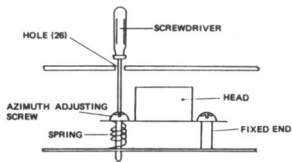
Although the head azimuth is carefully and accurately adjusted during manufacture, problems in loading may occasionally be experienced on a small number of commercially produced program tapes, or on tapes previously "saved" on another badly adjusted machine. Slight misadjustment of the head azimuth position can result in severe degradation of the signal picked up from the tape. If you suspect that this is occurring, the following procedure should be adopted, bearing in mind that adjustment to the head azimuth position for one troublesome tape, will inevitably result in loss of correct setting for all other tapes in your collection. It will thus be necessary to re-adjust the head to its original setting after successful loading has been accomplished.

It is important that head adjustment should only be carried out using the correct size and type of screwdriver. This should be available from your local tool shop. The use of any other screwdriver could cause damage to the mechanism. The required screwdriver is of the "PHILLIPS" cross-point type with a maximum shaft diameter of 2.5mm (0.10") and in this size is usually referred to as a "JEWELLERS SCREWDRIVER".

Maximum Shaft Diameter



1. Clean heads/pinch roller as detailed in 'Maintenance and Precautions Section 11.
2. Insert program tape and press "LOAD KEY" (20), adjusting LEVEL SET CONTROL (11) for approximately half scale reading of the LEVEL METER (13).
3. Pass the end of the AZIMUTH ADJUSTMENT SCREWDRIVER, very carefully, vertically through the HEAD AZIMUTH ADJUSTMENT HOLE (26) until it mates with the Head Azimuth Adjusting Screw.
4. Turn the screwdriver clockwise or anti-clockwise to maximise the reading on the LEVEL METER (13). UNDER NO CIRCUMSTANCES SHOULD THE SCREW BE ADJUSTED MORE THAN 3 TURNS IN EITHER DIRECTION OR DAMAGE MAY RESULT.
5. Set the SPEAKER FUNCTION SWITCH (17) to MONITOR and slowly again adjust the screwdriver no more than half a turn in either direction, until the sound heard is at its loudest and has the highest "treble" or "high pitch" content.
6. Remove the screwdriver and press STOP/EJECT KEY (23). Correct Azimuth Adjustment has now been achieved.



This facility is intended for use only in instances where difficulty is experienced or where tapes used are known to be suspect. Regular or routine adjustment is neither necessary or recommended.

## 9. TAPE TRANSPORT

The tape transport mechanism on the CPD-8300 is similar to conventional cassette recorders and operation follows the same pattern.

- A. **LOAD KEY (20)** – When pressed the tape transport starts and the program information on the tape is fed to the **LOAD SOCKET (3)** and the **SPEAKER (10)** via the **SPEAKER FUNCTION CONTROL SWITCH (17)**.
- B. **SAVE KEY (19)** – When pressed at the same time as the **LOAD KEY (20)** the tape transport starts and program information fed in to the **SAVE SOCKET (4)** or **AUX SOCKET (5)** is recorded onto the cassette tape.
- C. **STOP/EJECT KEY (23)** – When pressed from rest, the **CASSETTE LID (7)** is released and opens to accept a cassette tape. When pressed whilst the tape transport is operating, the effect is to stop the tape transport and release all keys. Depressing the key a second time results in the release of the **CASSETTE LID (7)** and its opening to allow removal of the cassette tape.
- D. **FAST FORWARD/DATA-CUE KEY (22)** – When pressed by itself the tape is made to run forward at high speed until stopped by pressing the **STOP/EJECT KEY (23)**. It is important, to prevent possible damage to the tape transport mechanism, that when the end of the tape is reached during **FAST FORWARD** or **REWIND** the

**STOP/EJECT KEY (23)** is pressed immediately. When pressed whilst the **LOAD KEY (20)** is in its depressed position, the tape is made to run forward at a higher than normal speed, but the sound is still available and can be heard through the speaker. The key will not lock in this condition.

- E. **REWIND/DATA-REVIEW KEY (21)** – The action of this key is identical to the **FAST FORWARD/DATA-CUE KEY (22)** but the tape direction is reversed.

### AUTO STOP

This recorder incorporates an automatic stop system which operates only in the "LOAD" or "SAVE" modes. It does not operate in Fast Forward or Rewind. When the end of the tape is reached, this is sensed automatically, and the **SAVE/LOAD Keys** are released.

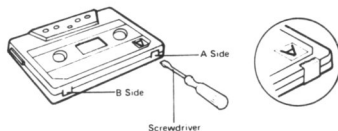
### TAPE ERASURE

Previously recorded material is automatically erased when a new program is saved on the same tape.

### PROTECTION AGAINST ACCIDENTAL ERASURE

Your recorded cassette can be protected against accidental erasure by removing the small tabs on the rear of the cassette. Removing the left tab, with the front of the cassette facing you, will protect the recording on Side A of the tape, and the right tab, Side B (See Diagram). Should you desire to make recordings on the same cassette, place a piece of adhesive tape over the opening from which the tab has been removed.

**NOTE:** A cassette without a tab makes the **SAVE KEY (19)** inoperative and the **SAVE KEY (19)** **CANNOT BE DEPRESSED.** Thus the unit cannot be set in the recording mode.



Cassette tapes are labelled C-30, C-60, C-90 denoting the total length of playing time available on the cassette, i.e. C-30 = 30 minutes (15

minutes each side) etc. For the best results always use good quality cassette tapes. C-120 tapes are not recommended, although in most cases satisfactory results may be obtained.

## 10. AUDIO USE

Your CPD-8300 can be used as a normal audio cassette recorder for both recording and playback of music.

### 1. PLAYBACK

To playback music tapes select SOUND/AMP on the SPEAKER CONTROL SWITCH (17) and depress the LOAD KEY (20). The volume can be varied by using the LEVEL SET CONTROL (11).

### 2. RECORDING

Recording can be achieved by connecting an external microphone (optional extra) to the SAVE SOCKET (4) and following the procedure laid down in SAVING PROGRAMS, Section 6. It is important however, that the SPEAKER FUNCTION CONTROL SWITCH (17) is in the OFF position or severe howling, due to audio feedback between speaker and microphone, will result.

It is also possible to record directly from your tuner or amplifier via a Patch Cord (optional extra) connected to the AUX SOCKET (5) however, due to the fact that this machine uses manual record level adjustment, it may be necessary to make several test recordings with different setting of LEVEL SET CONTROL (11) in order to optimise results.

## 11. MAINTENANCE/SIMPLE PRECAUTIONS

1. The SAVE/LOAD HEAD must be in clean and good condition. This is extremely critical for correct loading and saving of computer programs.

Any wear or dirt on the head will lower the level of saving and also the upper frequency response, thus degrading the computer signal. It is recommended that before SAVING any program the head is cleaned and also after every 5 hours of LOADING TIME.

This is most efficiently carried out by wiping the head and pinch

roller with a soft cloth or "cotton bud" impregnated with a proprietary brand of head cleaning fluid or methylated spirits.



1. Capstan
2. Pinch Roller
3. Save/Load Head
4. Erase Head

2. Avoid bringing the heads and tape near a magnetic field and also avoid touching the heads with any steel parts such as a screwdriver or pliers.
3. Never remove any part of the cabinet or dismantle the machine. In the event of a fault occurring always consult a qualified service agent.
4. To prevent fire or shock hazard do not expose the set to rain or moisture.
5. Avoid using or storing the unit in very dusty areas or in any place where the temperature exceeds 110 F (43°C).
6. Ensure your CPD-8300 is only used on 240 Volts A.C. Always disconnect from mains supply when not in use.
7. To avoid damage to the cassette transport mechanism, always depress the STOP/EJECT KEY (23) between operations – i.e. FF – STOP/EJECT – LOAD or LOAD – STOP/EJECT – REW.
8. There is no need to oil or lubricate any part of the mechanism, as all necessary lubrication has been carried out in manufacture and is for "life". The introduction of any oil or grease by the user will render the guarantee null and void.
9. On loading a program into the computer, from the recorder, the level setting is very critical. Please follow the instructions given in your computer manual carefully. A good starting point is to have the level setting at about 75% of maximum then adjust up and down by small amounts as necessary until success is achieved. It is worth noting that different brands of prerecorded cassette programs vary in their output level, therefore, it is possible the level setting may have to be varied accordingly. This also applies to different brands of cassette tapes used to record your own programs.

10. If problems are experienced in saving, make sure the cassette tape is clean. Extraneous noises on tape can cause the computer to "CRASH". The same can be true of loading. Any music, voices etc on the tape prior to the required program can confuse the computer and cause it to "CRASH".

## 12. SERVICE

Should your recorder fail to operate correctly please check the following points which may eliminate the problem quickly and simply and also save you money by avoiding unnecessary servicing costs.

1. Check that the tape heads and pinch roller are clean and free from tape dust.
2. Check fuses in the mains plug.
3. If the SAVE KEY (19) will not depress check the condition of the Record Safety Tabs referred to in Section 9 (Protection against Accidental Erasure).
4. Re-read the Instruction Book to ensure that the machine is being operated correctly.

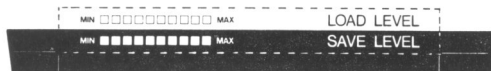
If after carefully checking these points, and those listed in Section 11 (Maintenance/Simple Precautions), the recorder still does not function correctly **DO NOT** attempt to tamper with any working parts as this will invalidate the guarantee. Simply return the unit, suitably packed, to the W. H. Smith branch from where it was purchased, giving a clear written description of the fault symptoms experienced.

## 13. SPECIFICATIONS

POWER SUPPLY	A.C. 240 VOLTS ONLY
POWER CONSUMPTION	6 WATTS
POWER OUTPUT	480 mW MAX
FREQUENCY RESPONSE	0.25-6 KHz
RECORDING SYSTEM	DC BIAS
ERASING SYSTEM	DC ERASE
S/N RATIO	32 DB
WOW + FLUTTER	0.3 % RMS (JIS)

F/F TIME (C60) 95 SECS  
REW TIME (C60) 95 SECS

Specifications subject to change for improvement without notice.



### PERSONAL SAVE/LOAD LEVEL SETTING INDICATOR (12)

This indicator may be cut out and fixed in the indicated position on your CPD-8300 or alternatively the required values may simply be noted above.